Animal production Level-IV

Based on March 2018, Version 1 OCCUPATIONAL STANDARD

MODULE TITLE: Facilitating Animal Health Program

LG Code: AGR APR4 M09 LO (1-3) LG (37-40)

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ADAMA, ETHIOPIA

East Africa Skills for Transformation and Regional Integration Project (EASTRIP)

Contents

LG #37	LO #1 Identify and report sick animals

Instruction sheet:

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Taking regular observations to assess animals' health
- Preparing and implementing work plan
- Recording and reporting animal health status
- Identifying and implementing OHS hazards
- Selecting and maintaining PPE
- Handling and restraining animals
- Checking withdrawal periods and identifying treated animals

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Take regular observations to assess animals' health
- Prepare and implement work plan
- Record and report animal health status
- Identify and implement OHS hazards
- Select and maintain PPE
- Handle and restrain animals
- Check withdrawal periods and identify treated animals

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-checks" which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If you earned a satisfactory evaluation proceed to "Operation sheets
7. Perform "the Learning activity performance test" which is placed following "Operation sheets" ,
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Information sheet 1- Taking Regular observations to assess animals' health

1. Introduction to the module

This teaching training and learning material provides the application of knowledge, skills and attitude to identify and report sick animal, facilitate livestock diseases prevention and control program, assess common animal disease and carryout post treatment activities to assist veterinarian.

Things to consider when conducting your observations (not limited to the following):

1.1 Animal Observation

- Observe - Learn how to recognize when animals look "off" due to an illness.
- Record - Prepare to keep records.
- Sample - Work with your herd veterinarian to learn how to collect samples in the event they might be used to test for disease during an outbreak.
- Report - Develop a communication plan so everyone knows how to report abnormal findings in your herd.

1.2. Look for Signs of Illness

WHEN: Generally, it is most effective to observe and assess an animal's health and well-being as a single and separate task, rather than combining it with other tasks or chores. If daily observations are combined with other tasks, the potential for missing something crucial increases, as the focus is on completing all of the tasks rather than observing the animal.

HOW

- Observe each animal daily to assess its health and well-being.
- Carefully observe each animal from head to tail
- Look at the feces and discharge from the animal for signs of abnormalities.

WHAT: Things to consider when conducting your observations (not limited to the following):

1. **Physical Attributes**
   - How does the animal look?
   - Are there any abnormalities?
   - Consider handling the animal if safe and appropriate to do so.

A. Body

- Glossy or dull, hair loss?

- Under or over weight?
- Can you see the ribs?
- Is hair coat normal?

B. Head

- Eyes – clear, discharge, winking or blinking excessively?
- Ears/Nose – clean, discharge or buildup?
- Mouth/Teeth/Gums – clean, buildup (tartar), bleeding or injuries?

C. Limbs/Extremities

- Feet – Nails/Claws/Hooves proper length, wounds or abnormalities?
- Joints – calluses, mobility, lameness?

2. Behavior

- Is the animal acting normal?
- Is the movement or gait normal?
- Is the animal lethargic or displaying behaviors consistent with sickness, stress?
- Does the behavior change when you move closer or farther away from the animal?

3. Environment

- Are environmental controls (temperature, humidity, shelter from elements) adequate for the species and the season?
- Is the animal: Huddling or shivering due to cold?
- Food and water receptacles used or left alone?
- Panting, or laying stretched out due to heat?
- Eating and drinking enough?
- Elimination habit normal?
- Loose or abnormal stools?
- Regurgitated food/water?
- Vomit?

Illness in Poultry : Signs could include: Sudden increase in bird deaths in your flock; Sneezing, gasping for air, coughing, and nasal discharge; Watery and green diarrhea; Lack of energy and poor appetite; Drop in egg production or soft- or thin-shelled, misshapen eggs; Swelling around the eyes, neck, and head; Purple discoloration of the wattles, combs, and legs (avian influenza; Tremors, drooping wings, circling, twisting of the head and neck, or lack of movement (exotic Newcastle disease).

1.1. Record Keeping: Keep records of daily observations and contacts with the attending veterinarian

- Animal identification.

- Date.
- What the problem was.
- Method of contact to the attending veterinarian (phone, text, email, visit).
- The attending veterinarian's advice

1. **Capture**: Capture information on daily observations, including photographs and videos, using a tablet or smartphone that can immediately connect to a main office computer for review.
2. **Create:** Create a system to log daily observation recordings, such as notebook/binder or spreadsheet/database.
3. **Look**
   - Look at every animal and enclosure at the beginning of each day.
   - Make a list of what needs to be fixed, repaired, clipped, moved, medicated, etc..
4. **Provide:** Provide training to all staff with responsibility for conducting daily observation on recognizing physical and behavioral concerns, and, the established protocol within the facility for documenting and communicating with the attending veterinarian.
5. **Monitor:** Monitor appetite and diet consumption as potential early indicators of concern. Include weekly weight checks in the observation program.

Self-Check -1 Written Test

Directions: Answer all the questions listed below 10 point each. Use the Answer sheet provided below.

1. Mention at least five signs of good health and ill health in animals(5pts)
2. What things to consider when conducting your observations of animals?(5pts)
3. What are the 3 levels of monitoring needed to ensure good animal health? (5pt)
4. List things that make up visual checks(5pts)

Note: Satisfactory rating 20 points Unsatisfactory below 20 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Name: _____

Date: _____

Information Sheet -2 Preparing and implementing work plan

2.1. Introduction

A work plan may include tasks (including type and application of treatments), equipment, resources and materials for use, equipment checks and maintenance procedures, supervisor instructions, timeframes for work completion, and reporting requirements.

2.2. Health plan

Animal Health Planning is a continuous improvement method that encourages the development of health building and disease control measures appropriate to the particular farm circumstances leading to a system that is progressively less dependent on veterinary medicines without jeopardizing welfare.

1. Background information:

Most farm and health plans start by listing some key details about your farm, such as the farm address and key farm personnel and other important farm contacts such as the farm vet and feed suppliers. Also details about your stock, such as numbers, breeds, and age of your herd or flock.

2. Record keeping and monitoring:

In order to effectively reduce both disease and medicine use, it is necessary to understand what the current levels are, and therefore a disease recording and monitoring system needs to be in place.

3. Herd Health Security:

A herd health security plan highlights all of the likely risk factors concerning the introduction of contagious diseases from outside the herd. Farmers should be aware of which diseases are in the local area and what the risk factors of importing them onto the farm are.

4. Closed herd/flock policy:

A genuine closed herd/flock is one where no animals are brought in even on a temporary basis (e.g., a rented bull, show animals). If breeding animals or show animals are likely to be bought occasionally

5. Disease Reduction and Control Plan :

The plan should consider each identified disease or syndrome, and establish ways in which the potential or identified risk factors can be reduced or eliminated. The plan should start with those diseases that have been identified as the main problems on the farm as a result of the monitoring process. New diseases and conditions can be added to the plan as time and herdsman motivation allow.

Self-Check -2 Written Test

Directions: Answer all the questions listed below 5 point each. Use the Answer sheet provided below.

1. Define work plan (5pts)
2. Describe and mention work plan?(5pts

Note: Satisfactory rating 10 points Unsatisfactory below 10 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Name: _____

Date: _____

Information Sheet-3 Recording and reporting animal health status

1.3.1. Recording : accurate records of information about your animal such as:

- Medications
- Diseases Injury
- Vaccinations
- Feed
- Financia

Sample animal health record #1

Market Animal Health Record
Sample animal health record #2

Date (MM/DD/Yy)	Animal ID	Condition/Problem	Treatment given

Permanent Individual Animal Record

Animal's name_____Registration number_____

Sex_____Breed_____

Birth date_____ Tatoo_____

Sire_____Dam_____

Health Record

Record all health management practices and/or treatments given to this project animal. It should include any vaccinations, treatment of diseases, de-worming etc

Date(MM/DD/YY)	Condition/Problem	Treatment given

SAMPLE ANIMAL HEALTH RECORD #3

Farm Name:_____

Farm Physical Address:_____

Herd Manager:_____

Phone Number:_____

Date	Animal Id	pen #	product name	lot #	Dosage	sq/im/iv/or	completed withdraw date	Notes	Name/initials of individual

SAMPLE ANIMAL HEALTH RECORD #4

No	Id	Date	Clinical signs	Diagnosis	Treatment Plan	Durationof treatment	Dosage& RouteOfadmi.	Animal Recovered (Yes Or No)

Self-Check -3 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

A. Multiple choice

1. Which of the following is not a reasonable security measure for client health records?(2pts)

a) Written policies and procedures
b) Records will never leave the facilit
c) All staff sign a confidentiality agreement
d) Access to records is on a need-to-know basis

B.. Discusion

2. Mention why record keeping is required in farm animals?(3PTS)

3. Take one animal affected by certain disease and mention what type of record you take.(5pts)

Note: **Satisfactory rating 10 points** **Unsatisfactory below 10 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet-4 Identifying and implementing OHS hazards

4.1. Definitions

Hazard:

Anything (e.g. condition, situation, practice, behavior) that has the potential to cause harm, including injury, disease, death, environmental, property and equipment damage.

Hazard Identification:

This is the process of examining each work area and work task for the purpose of identifying all the hazards which are “inherent in the job”.

Risk:

The likelihood, or possibility, that harms (injury, illness, death, damage etc) may occur from exposure to a hazard.

Risk Assessment:

Is defined as the process of assessing the risks associated with each of the hazards identified so the nature of the risk can be understood. This includes the nature of the harm that may result from the hazard, the severity of that harm and the likelihood of this occurring.

Risk Control:

Taking actions to eliminate health and safety risks so far as is reasonably practicable. Where risks cannot be eliminated, then implementation of control measures is required, to minimize risks so far as is reasonably practicable. A hierarchy of controls has been developed and is described below to assist in selection of the most appropriate risk control measure/s.

Monitoring and Review:

This involves ongoing monitoring of the hazards identified, risks assessed and risk control processes and reviewing them to make sure they are working effectively.

4.1.1. Risks associated with manual handling of animals

1. Risks to the professional worker :

When veterinarians are administering drugs to laboratory or any disease suspected animal, they may encounter the following risks:

a) **Animal bites and Scratches**: is an ever present hazard that faces all employees working directly with lab animals or any diagnostic practices.

b) **Protocol-related hazards**: are those hazards specifically associated with either routine operational or experiment-specific protocols. E.g. a specific viral vector carrying a transgene (having the genetic material) for toxic production.

c) **Zoonoses:** are those diseases that can be transmitted from animals to humans. Some diseases can be transmitted to the professional during animal handling and medicating practices.

- Anthrax
- Brucellosis
- Leptospirosis
- Listeriosis
- Pseudocowpox
- Rabies
- Riftvally Fever
- Ringowrm

d) **Inherent hazards:** these are some potential hazards inherent in any work environment. These includes poor ergonomics, (the study of working condition, especially design of equipments, buildings etc) slips and falls, electrical safety hazard etc.

e) **Allergy:** hypersensitivity reactions to the animal allergens are serious occupational health problems that developed in many individuals after repeated exposure.

2. **Risks to the animal:** During drug administering practices animals might be faced with risks like:
   - Allergic reaction with some drugs and site of administration.
   - Swelling at the site of drug injection site
   - The needle may be broken inside the animal body.
   - Drug resistance with respect to the under dosage of the drug and
   - Over dosage of the drug which might result even death etc

3. Risks to the public: The drug administered to the animal may result drug resistance on the user/public when they use animal products like egg, milk, meat

and if they consumed before the normal withdrawal period of the specific drug administered..

Risks to the animal: During drug administering practices animals might be faced with risks like:

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- Over dosage of the drug which might result even death etc

Risks to the public: The drug administered to the animal may result drug resistance on the user/public when they use animal products like egg, milk, meat and if they consumed before the normal withdrawal period of the specific drug administered.

Risk management

- Is an interactive process consisting of steps, which and when undertake in sequence.
- It is a logical and systemic method of establishing the context, identifying, and analyzing, treating, monitoring and communicating risks to minimize the losses.

There are five basic steps in the risk management process.

1. Identifying the hazard
2. Assess and prioritize the risks
3. Decide on measures to control the risk
4. Implement the appropriate control measures
5. Monitor and review the risk

4.2. Reporting hazards in animal care environment

Reporting is: To inform somebody in authority about something that has happened. I

Reporting OHS activities includes:

- **Safety inspection reports**
- Checklists
- Accidents and incidents reports
- Any inherent hazards
- Emergencies

=elf-Check -5 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

A. Multiple choice

1. Which one of the followind cannot included while reporting OHS?(2pts)

a) Safety inspection reports
b) Checklists
c) Accidents and incidents reports
d) No answer

2. From the following disease which is not considered as zoonotic?(3pts)

a) Anthrax
b) Brucellosis
c) Leptospirosis
d) Tick

Discussion

1. Why we consider safety procedure during working with cattle(3pts)
2. What are possible hazard and risk associated with animals?(2pts)
3. What are the five basic steps in the risk management process (5pts)

Note: **Satisfactory rating 20 points** **Unsatisfactory below 20points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

5.1. Personal Protective Equipment: PPE is often worn in an animal facility to minimize exposure to serious workplace injuries and illnesses. Injuries and/or illnesses may result from exposure to:

- Chemical
- biological
- radiological
- physical
- electrical
- mechanical

These hazards should be identified for mitigation. Mitigation procedures include

1. elimination or substitution of a less hazardous substance or method
2. the use of engineering controls to reduce potential exposures
3. administrative or procedural controls
4. The use of PPE”“in that order.

1.5.2. Use Personal Protective Equipment

Using personal protective equipment reduces exposure and thus reduces risks to the pesticide applicator.

Protective clothing and equipment

1. **Coveralls:** Wear long sleeved coveralls over full length pants and long-sleeved shirts. Make sure the coveralls are closed at the neckline and wrists.
   - Wear waterproof clothing if you might get wet during pesticide application.
   - Some disposable coveralls are suitable for pesticide use.
   - To discard, place in a plastic garbage bag and take to a landfill site. Do not burn.
2. **Gloves:** Always wear gloves when handling pesticides. Many glove materials are available.
   - Do not use gloves made of leather, cloth.
   - Make sure the gloves do not have holes or leaks.

- Keep your coverall sleeves over the gloves and fold down the tops of the gloves to make cuffs to keep the pesticide from running down the sleeves and into the glove.

3. **Boots:** Wear waterproof, unlined knee-high boots of rubber or neoprene when you load, mix or apply pesticides.
   - Wear your pant legs outside of your boots so the pesticide doesn't run into your boots.
   - Do not wear boots made of leather or fabric.
   - Wash the outside of your boots after each use.
4. **Goggles and face Shields:** Precautionary statements on the labels of pesticides with the signal words WARNING or DANGER generally indicate the use of eye protection.
5. **Hats:**If there is a risk of exposure to pesticides by splashing or drift, wear a wide-brimmed, rubber rain hat. Some spray suits have attached hoods which protect your head and neck area.
6. **Protect your Lungs – Respirators:**Wear a respirator when the label says to wear one; or when the label says to avoid inhalation of dust, vapour, or spray mist; or if there is a danger poison symbol on the label; or if you are applying pesticides in an enclosed space, such as a greenhouse.

Types of Respirators:

1. Chemical Cartridge Respirators
2. Canister Respirators
3. Powered Air Purifiers

Self-Check -5 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is PPE? and why we use?
2. What are possible hazard identified for Mitigation procedures?

Note: **Satisfactory rating 10 points** **Unsatisfactory below 10 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ **Date:** _____

Information Sheet-6 Handling and restraining animal

6.1. General Animal Handling

There are some important generalizations we can make about cattle that facilitate their handling:

- Excited animals are harder to handle.
- Loud noises, especially high pitched noises, frighten Cattle.
- Cattle remember "bad" experiences and create associations from fear memories.
- When cattle kick they kick forward, then out and back in a swinging motion.

1.6.1. Method of casting and restraining the animals under control

Purpose it is important for variety of reason as follow:

- Necessary for various operation such as: Dehorning, Castration, Treatment, Examination of body parasitic.
- Needs for examination of lower body parts
- To trim or pare over grown hoofs
- For shoeing the animals
- For safety to stock man and veterinarian
- To prevent injury to animals and carry out major surgical operation conveniently

Needed

1. Cow or other animals
2. 10m cotton ropes(two)of 3cm diameter and one rope 5m length and 2cm diameter
3. A short rope of 1.5m of 2cm diameter
4. /Enough number of skilled person

1.6.2. Method of casting and throwing the animals

1. Reuffs method
2. Method based on reuff'smethod
3. Ablidguard'smethod

4. Restraining the cow bymeans of free rope

Self-Check -6 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the purpose restraining animals?(2pts)
2. Mention the four Method of casting and throwing the animals?(2pts)

Note: **Satisfactory rating 4 points** **Unsatisfactory below 4points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Information Sheet-7 Checking withdrawal periods and identifying treated animals

7.1. Introduction

Withdrawal period: refers to the minimum period of time from administering the last dose of medication and the production of meat or other animal-derived products for food.

The withdrawal period is different for each veterinary medicinal product, animal species and food type, meaning there are different withdrawal periods for meat (slaughter), fish, eggs, milk and honey. For example, if mastitis is treated with a medicine that requires a withdrawal period of 6 days for milk, the treated cow's milk may be produced for delivery to a dairy on the 7th day after the last dose, at the earliest.

The purpose of the withdrawal periods is:

- To ensure that foods do not contain residues of pharmacologically active substances in excess of the maximum residue limit (MRL).
- To determine withdrawal periods, data on the drug metabolism in the animal is studied. The results of residue studies on a veterinary medicinal product are then compared with the MRL. The withdrawal period is set so that it is long enough to ensure that medicinal residues in the animal's tissues are below the maximum limit.

Self-Check -7	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Discusses the purpose of the withdrawal periods?(2pts)
2. Define Withdrawal period(1pts)

Note: **Satisfactory rating 3 points** **Unsatisfactory below 3 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ **Date:** _____

Operation Sheet 1 Restraining

. Use Reuffs method

Step 1- Make the animal stand in the middle of the casting yard provide with bedding materials.

Step 2- Make the sliding knot for the horn or a sliding knot with a top knot for the neck.

Step 3- Pass it around the base of the horn or fix it around the neck.

Step 4- Make the half hitch around the chest immediately around the elbow.

Step 5- Continoue it with another half hitch around the abdomen in front of the udder.

Step 6- Bring the two hitches in a straight line on the side opposite to the casting side.

Step 7- Let one man hold the head and the other pull the rope. As the animal falls the other attendant will help insuring the animal.

Operation Sheet 2 Restraining

Use Abildguards method

Step 1- Tie two legs together above fetlocks with a small rope.

Step 2- Fasten the longer rope to the rope joining the forelegs and run this rope backwards between hind legs.

Step 3- Fasten second rope to one of the hind leg on pass turn and then encircle round the other hind legs bringing close together and run the rope forward between the forelegs

Step 4- Two persons will pull the rope .i.e. one in front and the other behind of animal and throw the animal on the ground.

Step 5- Make combined efforts i.e. person in front will turn neck upward on the body and the other would seize its hind limbs to carry out operations

LAP Test Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required perform the following tasks within --- hour.

Task 1. Perform restraining using Reuffs method

Task 2. Perform restraining using Abildguards method

LG#38	LO #2 Assess common animal disease

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Identifying and determining the type and severity of infection and parasites
- Identifying animals affected by metabolic disease and protozoa
- Identifying equipment and materials required for the treatment
- Preparing treatment site

This guide will also assist you to attain the learning outcomes stated in the cover page.

Specifically, upon completion of this learning guide, you will be able to:

- Identify and Determine the type and severity of infection and parasites
- Identify animals affected by metabolic disease and protozoa
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7. Perform “the Learning activity performance test” which is placed following “Operation sheets”
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Information Sheet- 1 .Identifying and Determining the type and severity of infection and parasites

1.1. Introduction of some important disease of animals

1.1.1. Classification of diseases

i. According to Causes

A. Specific

1. Infectious diseases. These are caused by:
   a) Virus (Render pest, F.M.D, Cow pox, Rabies, Ephemeral fever etc.)
   b) Bacteria (anthrax, B.Q, H.S, T.B, Bang's, Mastitis etc.)
   c) parasites(endo and exo parasites)
2. Contagious disease. These are transmitted by contact of sick animals.

B. Nonspecific. This group includes diseases occurring due to unknown specific causal organism.

ii. According to duration and severity

1. **Chronic or sub- acute** .These disease affect animal gradually. Symptoms are exhibited gradually and take long to develop and cure.eg T.B and johne's
2. **Sub- acute**. Such disease which affects suddenly but takes long time to cure
3. **Acute** .Disease which affects animals quickly and disappears and usually fatal
4. **Per-acute**. Such infection affect animals very sudden and even before symptoms are exhibited the animal's dies like Anthrax.

iii. According to beginning of disease

1. **Congenital:** Infectious transmitted by mother to off-spring during pregnancy period **Hereditary**: Disease transmitted from parent to off-springs like Hemophilia.
2. **Acquired:** Infection, an animal gets after its birth during growing period.

iv. According to Area/species

1. **Epizotic:** Such disease which affects animals of large area/region.eg Render pest.

2. **Enzootic**: such disease which are specific to particular breeds or species of animals.eg Fowl cholera
3. **Exotic :**It includes diseases brought by animals which imported from the country.eg south African, Horse sickness
4. **Sporadic:** Disease can occur any wheresporadically.eg Rabies
5. **Panzootic**: Disease affecting different species or breeds in acountry.eg salmonellosis

1.1.2. Classification of disease by type

1. **Respiratory:** Respiratory diseases are common and costly to livestock producers. Symptoms include coughing, nasal and eye discharge, rapid shallow breathing and salivation.
    1. Bluetongue
    2. BVD
    3. Calf Diphtheria
    4. Calf Pneumonia
    5. Fog Fever
    6. IBR
    7. TB
    8. Thrombosis
    9. Trypanosomosis
2. **Reproductive:** Reproductive diseases tend to develop gradually and can be difficult to identify until well established in the herd. Symptoms of reproductive diseases include poor fertility rates, abortion, still births, discharge etc.
    1. Abortion
    2. Bovine Anemia
    3. Bovine Trichomonas's
    4. BVD
    5. Brucellosis
    6. Vibriosis
    7. Cystic ovaries
    8. Leptospirosis
    9. Neosporosis
3. Repeat breeding syndrome
    1. Retained Fetal Membranes
    2. Schmallenberg
    3. Trypanosomosis

4. **Metabolic:** Metabolic disorders occur because of nutritional deficiencies. Drop in yields; appetite, weight loss and depression are common symptoms.
    1. Acetonaemia
    2. Fatty liver
    3. Rumen acidosis
5. **Young stock:** Find diseases that specifically affect calves or young cattle.
    1. BVD
    2. Calf Diphtheria
    3. Calf Pneumonia
    4. Calf Scour
    5. IBR
    6. Joint Ill
    7. Peri-Weaning Diarhheoa
    8. Calf Scour
    9. Rotaviral diarrhoea
6. **OIE Reportable:** These diseases are highly contagious and can have a severe economic impact on individual herds and the wider industry. Because of this, they must be reported to the World Animal Health Organization (OIE).

1. Anthrax
2. Bluetongue
3. BSE
4. Foot and Mouth
5. IBR
6. Rift Valley Fever

7. **Skin, eyes and feet:** Information on infections and/ or diseases that affect skin, eyes and feet can be found here, includes lameness.
    1. Bluetongue
    2. Bovine Anemia
    3. Calf Diphtheria
    4. Digital Dermatitis
    5. Epizootic Hemorrhagic Disease
    6. Foot Rot
    7. Foot and Mouth
    8. Lice
    9. Mange
    10. New Forest Eye
    11. Photo sensitization
    12. Hemorrhagic Syndrome
    13. Pseudocowpox
    14. Ragwort Poisoning
    15. Rain Scald
    16. Ringowrm
    17. Sole Ulcer
    18. Wooden Tongue

8. **Enteric:** Enteric diseases are infections that develop in the intestinal tract and can be caused by bacteria, viruses or parasites. Symptoms include diarrhoea, weight loss and fever.

1. Blackleg
2. Bloat
3. Coccidiosis
4. Cryptosporidiosis
5. Displaced abomasum
6. Gut worms
7. Johnes
8. Listeriosis
9. Liver fluke
10. Necrotic enteritis
11. Peri-weaning diarhheoa
12. Calf Scour
13. Rift Valley Fever
14. Rumen Acidosis
15. Rotaviral Diarrhoea
16. Samonella
17. Selenium deficiency
18. Trypanosomosis

9. **Udder:** Udder diseases are of particular concern in dairy and breeding herds. Swelling, lesions or sores on the teats are all signs of udder disease

1. Mastitis
2. Pseudocowpox
3. Summer Mastitis
4. Ulcerative Mammillitis

10. **Neurological:** Neurological diseases can be caused by bacteria, viruses or toxic substances. Loss of coordination, isolation from herd, strange behavior and facial nerve paralysis are all symptoms of neurological disorders.

1. Acorn Poisoning
2. Anaplasmosis
3. Botulism
4. BSE
5. Bovine Anemia
6. Bovine Babesiosis
7. Bracken Poisoning
8. Cold Cow Syndrome

11. **Zoonoses:** These diseases not only affect cattle, but can be passed onto humans and vice versa.

1. Anaplasmosis
2. Anthrax
3. Brucellosis
4. Leptospirosis
5. Listeriosis
6. Pseudocowpox
7. Rabies
8. Rift Valley Fever
9. Ringowrm
10. Samonella

11. TB

2.2. Some important common infectious diseases

1. **BLACKLEG::** Blackleg is a highly fatal disease of young cattle caused by the spore forming, rod shaped, gas producing bacteria Clostridium chauvoei. Clostridia are group of anaerobic, spore-forming organisms found in the soil/environment, which produce rapidly fatal disease by secretion of potent toxins. Conditions such as botulism, blackleg, bacillary hemoglobinuria, malignant oedema and tetanus are all caused by clostridia. Most cases occur in young stock between 10 months and two years of age. Feet or legs and the tongue are often the predilection site.

   Symptoms

   - Lameness
   - Loss of appetite
   - Rapid breathing
   - Fever
   - Unwillingness to move

   Treatment

In most cases the animal is found dead without being previously observed sick.

Prevention

Vaccination is available that will protect cattle from a number of different illnesses caused by clostridia.

2. **Anthrax:** Anthrax, a highly infectious and fatal disease of mammals and humans, is caused by a relatively large spore-forming rectangular shaped bacterium called Bacillusanthracis. Anthrax occurs on all the continents, causes acute mortality in ruminants and is a zoonosis. The bacteria produce extremely potent toxins which are responsible for the ill effects, causing a high mortality rate. While most mammals are susceptible, anthrax is typically a disease of ruminants and humans. It does not typically spread from animal to animal nor from person to person. The bacteria produce spores on contact with oxygen.

   Clinical Signs

- Sudden death (often within 2 or 3 hours of being apparently normal) is by far the most common sign
- Very occasionally some animals may show trembling, a high temperature, difficulty breathing, collapse and convulsions before death. This usually occurs over a period of 24 hours
- After death blood may not clot, resulting in a small amount of bloody discharge from the nose, mouth and other openings

Treatment

Due to the rapidity of the disease treatment is seldom possible, although high doses of penicillin have been effective in the later stages of some outbreaks.

Prevention

Infection is usually acquired through the ingestion of contaminated soil, fodder or compound feed. Anthrax spores in the soil are very resistant and can cause disease when ingested even years after an outbreak. The spores are brought to the surface by wet weather, or by deep tilling, and when ingested or inhaled by ruminants the disease reappears.

Where an outbreak has occurred, carcasses must be disposed of properly, the carcasses should not be open (exposure to oxygen will allow the bacteria to form spores) and premises should be quarantined until all susceptible animals are **vaccinated.**

Vaccination in endemic areas is very important. Although vaccination will prevent outbreaks veterinary services sometimes fail to vaccinate when the disease has not appeared for several years. But because the spores survive for such lengthy periods, the risk is always present.

3. Tetanus

Tetanus is a fairly common disease occurring in all types of livestock. It is relatively rare in cattle, but outbreaks of disease can cause very severe losses.

Cause

Tetanus is caused by toxins produced by the bacterium Clostridium tetani. This bacterium is found in the soil and the guts of animals and humans. The disease starts when the organism gets into wounded or damaged tissue as a result of contamination. In the absence of oxygen the bacteria multiply and produce a local infection.

Clinical signs

- Stiffness and reluctance to move are normally the first signs
- Twitching and tremors of the muscles
- Lockjaw
- Prominent protruding third eyelid
- Unsteady gait with stiff held out tail
- Affected cattle are usually anxious and easily excited by sudden movements or handling.
- Bloat is common because the rumen stops working
- Later signs include collapse, lying on side with legs held stiffly out, spasm and death.

Treatment

- Cattle with early tetanus probably respond to treatment better than most other livestock.
- Antitoxin is of very little use unless given in the very early states of infection.
- In some cases sedatives and relaxants have been known to aid recovery.
- It is not worth treating cattle with fully developed tetanus.

Prevention

Undertaking surgical procedures (such as castration) properly, in a clean environment, with disinfected instruments and surgical area, will significantly reduce the risk of tetanus. The same rules apply to calving, be as clean as possible and minimize

contamination.

Antitoxin can be useful as a short-acting (up to 21 days) preventative if used at high risk times, however on some farms vaccination may be better, as a three dose course of vaccination can result in protection for over three years.

4. Bovine Tuberculosis (TB)

Bovine Tuberculosis (TB) is an infectious disease of cattle. It is caused by the bacterium Mycobacterium bovis (M. bovis) which can also infect and cause disease in many other mammals including humans, deer, goats, pigs, cats, dogs and badgers. In cattle, it is mainly a respiratory disease but clinical signs are rare. TB in humans can be caused by both Mycobacterium bovis and the human form, Mycobacterium tuberculosis.

Spread of TB: Evidence of bovine TB is most commonly found in the lymph glands of the throat and lungs of affected animals. Bovine TB is transmitted between cattle, between badgers, and between the two species.

Cattle can spread this disease to other cattle:

- directly via respiratory route
- directly via infected milk
- directly before birth through the placenta
- indirectly via environmental contamination

Badgers can spread this disease to other badgers directly via close contact including intimate contact between mother and cub

The disease can be spread between badgers and cattle:

- directly via close contact
- indirectly via environmental contamination with infected sputum / faeces /urine or discharges from abscesses and skin lesions

Cattle grazing areas where infected badgers have been present are exposed to a risk of infection.

Prevention of TB

Eradication of Bovine TB is the ultimate aim for DAERA but cattle farmers can play their part in reducing the spread of TB. While it is impossible to guarantee that a herd will remain clear of disease, it is possible to reduce the risk of disease by the following means:

Introduction of TB into your herd by bought-in cattle

- maintain a closed herd
- if you must purchase cattle, purchase directly from a known source and avoid cattle that may have been frequently moved
- take particular care about the origin of breeding cattle
- ask about the test history of the animals you are purchasing
- bought-in beef store cattle for finishing should be kept separately from your breeding stock

Introduction of TB into your herd through contact with badgers and deer

- minimize both direct and indirect cattle contact with badgers and deer
- if possible, avoid grazing fields which contain badger setts
- remove badger carcases from fields
- avoid over-grazing of fields
- fence off badger setts to prevent access by cattle
- if possible, badger paths and latrines should also be fenced off
- prevent badger access to farm buildings, feed and feed stores
- If possible, prevent deer using round feeders provided for cattle.

Introduction of TB into your herd through contact with cattle from other herds

- do not share winter housing
- do not borrow bulls
- minimize the return of cattle from markets

Introduction of TB into your herd through contact with people and equipment

- minimize visitor contact with your herd and ensure all visitors take precautions to prevent the introduction of infection to your premises
- provide a disinfectant footbath
- clean and disinfect cattle housing and equipment before restocking a house
- change clothes and disinfect after visiting other herds and before coming into contact with your own cattle
- avoid sharing equipment or vehicles with other farmers

Introduction of TB into your herd by slurry from other farms

- avoid grazing land for 6 weeks after spreading
- do not use slurry or manure from other herds on your land

General means to reduce risk of disease

- cattle should not be reliant on natural water sources and should be prevented from access where possible
- test your herd on time and allow adequate time for the testing officer to do a thorough job

5. Bovine Babesiosis (Redwater, Tick Fever)

Cause

Bovine Babesiosis (BB) is a tick-borne disease of cattle. The principal strains are babesia bovis and babesia bigemina, with Rhipicephalus ticks being the major vector. Babesia divergens is also found, with the major vector being Ixodes ricinus.

Transmission of B bovis takes place when engorging adult female ticks pick up the infection. They pass it on to their progeny via their eggs. Larvae (or seed ticks) then pass it on in turn when feeding on another animal. B bigemina is also passed from one generation of ticks to the next. Engorging adult ticks pick up the infection and nymphal and adult stages (not larval stages) of the next generation pass it on to other cattle.

Symptoms

BB is predominantly observed in adult cattle. Infected animals develop a life-long immunity against re-infection with the same species and some cross-protection is evident in B. bigemina-immune animals against subsequent B. bovis infections.

B. bovis

Conditions are often more severe than other strains.

- High fever
- Parasitaemia (percentage of infected erythrocytes) - maximum Parasitaemia is often less than one per cent.
- Neurologic signs such as incoordination, teeth grinding and mania.
- Dark coloured urine
- Anorexia

B. bigemina

- Fever
- Anorexia
- Animals likely to separate from herd, be weak, depressed and reluctant to move
- Hemoglobinuria and anemia
- Dark coloured urine
- Central nervous system (CNS) signs are uncommon
- Lesions

6. Salmonellosis

Couse

Salmonella infection (salmonellosis) is a common bacterial disease that affects the intestinal tract. Salmonella bacteria typically live in animal and human intestines and are shed through feces. Humans become infected most frequently through contaminated water or food.

Symptoms

Salmonella infection is usually caused by eating raw or undercooked meat, poultry, eggs or egg products. The incubation period ranges from several hours to two days. Most salmonella infections can be classified as stomach flu (gastroenteritis). Possible signs and symptoms include:

- Nausea
- Vomiting
- Abdominal cramps
- Diarrhea
- Fever
- Chills
- Headache
- Blood in the stool

Prevention

Wash your hands: Washing your hands thoroughly can help prevent the transfer of salmonella bacteria to your mouth or to any food you're preparing. Wash your hands after you:

- Use the toilet
- Change a diaper
- Handle raw meat or poultry
- Clean up pet feces
- Touch reptiles or birds

Treatment, prevention and control:

With antibiotics has limited efficacy, because it is a disease that easily chronifies producing asymptomatic carriers. The use of inactivated vaccines against paratyphoid *Salmonella*:

- Reduces fecal shedding.
- Reduces egg transmission.
- Reduces organ invasion.
- Control of Salmonella has to be an all-around strategy based on the following points:
- Only animals free of it may enter farms
- Testing of raw materials
- Control measures for vectors
- Strict rules of biosecurity

7. Brucellosis

Cause: Brucellosis is an infectious disease that occurs from contact with animals carrying Brucella bacteria. Brucella can infect cattle, goats, camels, dogs, and pigs. The bacteria can spread to humans if you come in contact with infected meat or the placenta of infected animals, or if you eat or drink unpasteurized milk or cheese. Brucella is highly contagious, spreading very easily between cattle as the calf, the membranes and the uterine fluids all contain large quantities of bacteria.

Brucellosis affects many wild and domestic animals, including:

1. Cattle
2. Goats
3. Sheep
4. Pigs and wild hogs
5. Deer
6. Camels

The most common ways that bacteria spread from animals to people are:

- Eating raw dairy products.

- Inhaling contaminated air.
- Touching blood and body fluids of infected animals**.**

Complications

Brucellosis can affect almost any part of your body, including your reproductive system, liver, heart and central nervous system. Chronic brucellosis may cause complications in just one organ or throughout your body. Possible complications include:

- Infection of the heart's inner lining (endocarditis).
- Arthritis.
- Inflammation and infection of the testicles (epididymo-orchitis).
- Inflammation and infection of the spleen and liver. .
- Central nervous system infections.

Symptoms

- Abortion;
- Stillborn
- Weak calf born
- Retention of fetal membranes;
- Signs of infection in the membranes;
- Swollen testicles in bulls

Treatment

- No treatment is available, which makes detection and prevention essential.

To reduce the risk of getting brucellosis, take these precautions:

- Avoid unpasteurized dairy foods. .
- Cook meat thoroughly.
- Wear gloves.
- Take safety precautions in high-risk workplaces.
- Vaccinate domestic animals**.** .

6. Calf pneumonia

Cause

Calf pneumonia is a major problem in dairy and beef herds. It is a multifactorial disease, and the most common post-mortem diagnosis in calves between one to five months of age. Infectious agents involved include Mannheimia haemolytica, Haemophilus somnus, Infectious Bovine Rhinotracheitis (IBR), bovine Respiratory Syncytial Virus (RSV) and Parainfluenza III Virus (PI3), along with many other bacteria and mycoplasma species and viruses.

Symptoms

- Dull and depressed
- High temperature
- Raised breathing due to lung damage
- Nasal discharge
- Coughing

Chronic pneumonia is more gradual in onset with no distinct ill phase and the cow may appear to still eat well but may have a slight nasal discharge, sometimes with an increased respiratory rate and cough.

Treatment: Antibiotics, anti-inflammatories or anthelmintic can be prescribed for treatment.

Prevention: It can be difficult to control pneumonia when calves are placed in communal pens. Improved husbandry, ventilation and good nursing care can all reduce risks of pneumonia, as well as ensuring that young animals receive appropriate amounts of colostrum within the first 24 hours of birth.

Colostrum: All calves must have one gallon of colostrum within four to six hours of birth to receive adequate immunity. Calves that are not given enough antibodies at birth are at increased risk for pneumonia and scours throughout the entire growing period. The most important step in any calf health-management programme is a successful colostrum-managementprogramme.

Nutrition: Feeding calves inadequately will reduce calf growth and their immune system response.

Vaccination: Vaccines are available to reduce risk of infection, however they must be used alongside an effective management programme.

7. Mastitis

Cause

Mastitis is the inflammation of the mammary gland and udder tissue. It usually occurs as an immune response to bacterial invasion of the teat canal by variety of bacterial sources present on the farm (commonly through bedding or contaminated teat dips), and can also occur as a result of chemical, mechanical, or thermal injury to the cow's udder.

Mastitis is a multi factoral disease, closely related to the production system and environment

that cows are kept in. Mastitis risk factors or disease determinants can be classified into three groups: host, pathogen and environmental determinants.

Symptoms

Subclinical: Few symptoms of subclinical mastitis appear, although it is present in most dairy herds.Somatic cell counts measure milk quality and can be used as an indicator of mastitisprevalence.

Clinical mastitis: The most obvious symptoms of clinical mastitis in the udder are swelling, heat, hardness, redness or pain. Milk takes on a watery appearance, flakes, clots or pus is often present. A reduction in milk yields, increases in body temperature, lack of appetite, and a reduction in mobility due to the pain of a swollen udder are also common signs.

Treatment

NSAID are widely used for the treatment of acute mastitis. Aspirin, flunixin meglumine, flurbiprofen, carprofen, ibuprofen, and ketoprofen have been studied as treatments for experimental coliform mastitis or endotoxin-induced mastitis. Orally administered aspirin should be used with caution in acute coliform mastitis because it may lead to severe rumen atony.

Prevention

1. Hygienic teat management:
2. Prompt identification and treatment of clinical mastitis cases
3. Dry cow management and therapy
4. Culling chronically affected cows
5. Regular testing and maintenance of the milking machine
6. Good record keeping

Overview of Testing Methods

Test	Test location	Milk sample type
California Mastitis Test	Farm	Fresh milk
Somatic cell count	Lab	Fresh milk
ELISA	Lab	Fresh, Frozen, Preserved
Bacterial culture	Lab	Fresh
Multiplex PCR	Lab	Fresh, Frozen, Preserved

Test	Principle
California Mastitis Test	Detergent lyses white blood cells (leucocytes) in milk sample, resulting in viscosity of the fluid. This is a measure for severity of infection.
Somatic Cell Count	Counting of leucocytes in a milk sample, either under a microscope or using automated cell counting systems (flow cytometry).
ELISA	Detects antibodies instead of pathogen; infection may no longer be active.
Bacterial culture	Milk sample is streaked on culture plates. Viable pathogens form colonies that are counted.
Multiplex PCR	Amplification and detection of nucleic acid of mastitis-causing pathogens. Screening for multiple pathogens in one run. Indicates active infection. Pathogens do not need to be viable.

Submitting a clean milk sample to the laboratory is critical to a successful pathogen diagnosis. Follow these steps:

Aseptic Milk Sampling Procedure

1. Clean the udder from visible dirt
2. Prevent kicking
3. Wash your hands
4. Clean the teat end with 3 clean swabs dipped in 70% alcohol disinfectant
   a. If the teat end is in poor condition, more cleaning may be needed
5. Open the milk tube corn and keep it clean in your palm
6. Milk the sample keeping the tube in horizontal position
7. Close the cork immediately
8. Add markings like cow number, quarter and date on the tube
9. Important: only one quarter to one tube

8. Lumpy-skin disease (LSD)

- It is a viral disease of cattle and is typically characterized by nodules on the skin.
- All cattle breeds in South Africa can be affected.
- It usually occurs during the wet summer and autumn months, when flies are in abundance.
- ' The disease occurs throughout Africa.

Important of lumpy-skin disease

- It is a notifiable disease, which means the state veterinarian must be informed because there are specific control schemes for this disease.
- Up to 45% of your herd can get infected and the mortality (death) rate may reach 10%.
- The disease causes emaciation (loss of body condition because of unwillingness to eat); temporary or permanent loss of milk production, lowered or complete loss of fertility in bulls and cows, abortion as well as permanent damage to hides (skin)
- There is a loss in income because of lower production (deaths, milk and meat, abortions, lowered breeding potential, and damage to valuable hides), and the costs of drugs to treat sick animals.

  animals can be affected
- Cattle of all ages can be infected.
- Cattle which are vaccinated annually are protected and therefore less likely to be infected.
- Cattle which have had the disease and survived cannot be infected again (also immune).
- Calves under 6 months of age are protected against the disease if their mothers were vaccinated or had the disease previously

  signs of lumPy-skin disease in cattle: Any one or more of the following
- Skin nodules and ulcers:
  - ✓ can vary from a few to hundreds
  - ✓ the size ranges from 0,5–5 cm
  - ✓ they occur anywhere on the skin, including the nose, udder and vulva

  in cows, the scrotum in bulls, as well as in the mouth (the gums)
- Legs which become swollen and develop sores
- Enlarged lymph nodes
- Pneumonia/coughing—as a result of infection of the respiratory tract (the windpipe) and lungs
- Nasal discharge—thick, watery to pussy fluid from the nose
- Infertile bulls—due to orchitis (infection of the testes)
- Infertile cows
- Mastitis—this lowers milk production
- Lachrymation, infection of the eye or even blindness
- Fever

- Emaciation
- ’Salivation

Treatment of LSD

There is NO TREATMENT for lumpy-skin disease. Nonspecific treatment (antibiotics, anti-inflammatory drugs and vitamin injections) is usually directed at treating the secondary bacterial infections, inflammation and fever, and improving the appetite of the animal.

Prevention of lumpy-skin disease : Prevention is the cheapest and best method of control of the disease. If your animals are protected, you will not suffer any production or financial losses as a result of the ill effects of the disease.

Vaccination (the best)

The attenuated Neethling strain vaccine is a product that contains a weakened LSD virus. When this vaccine is administered the animal will develop protective antibodies (made by white blood cells). These antibodies then resist the actual virus that is transmitted by biting flies or milk and saliva of infected animals. The animal is therefore protected or immune

- The Onderstepoort Veterinary Institute or the local veterinarian can supply vaccines.
- All cattle should be vaccinated annually (once a year), and preferably
- before the summer rains to ensure good protection.
- Animals that had the disease and recovered, are immune and therefore donot have to be vaccinated.
- Calves which are under 6 months old and were born to cows which have been vaccinated or had the disease, do not need to be vaccinated. However, as soon as they are 6 months old, they have to be vaccinated annually.

There may be a swelling at the site where the vaccine is given, and a temporary drop in milk production, but the swelling will disappear after a few weeks with a return to normal milk production.

9. Rabies

By attacking the nervous system, brain and spinal cord, Rabies can cause brain deterioration and death. It is preventable through the use of vaccinations, an option available since Louis Pasteur introduced a vaccine in 1883.

cause

caused by the Lyssavirus causing acute inflammation to the brain (Encephalitis). It is considered to be all but 100 per cent fatal.

Clinical Signs

In the absence of anti-viral rabies drugs, progress to death is rapid once clinical signs appear. Milk production and feed intake may drop gradually before rapidly falling and cows may look very alert, staring at objects.

Aggressive, excitable or exaggerated movements can be signs of rabies. Sexual activity can be increased, including mounting behavior. Bulls can have persistent erections or a prolapsed penis.

Other Signs Include

- Inapettence (Lack of appetite)
- Dyspahgia (difficulties swallowing)
- Altered Vocalisation
- Seizures
- Incoordination of hindquarters - Unsteady gait

Prevention

Education and vaccination of wild animal populations can control rabies transmission. By limiting the number of wild animals carrying the virus and the chance that those animals will come in contact with pasture and farmland, the likelihood of rabies transmissionisreduced. Cautious handling of cattle with undetermined illnesses is recommended, especially if neurological signs have been observed. Examining a cow's mouth should be done with gloves to avoid exposure of the veterinarian's or stockman's hand to saliva. The Centre for Disease Control and Prevention recommends the following to limit rabies spread;

- Characterize Virus Characterize the virus at the national reference laboratory
- Identify and Control Source Identify and control the source of the virus introduction
- Enhance Surveillance Enhance laboratory-based surveillance in wild and domestic animals
- Increase Vaccination Increase animal rabies vaccination rates
- Restrict Animals Restrict the movement of animals
- Vector Population Evaluate the need for vector population reduction
- Coordinate Response Coordinate a multiagency response
- Provide Outreach Provide public and professional outreach and education

Tests and Vaccination

There are no tests available for rabies in live animals. Determination normally requires a post-mortem inspection of the brain.

Three companies currently produce rabies vaccines, Pfizer (Defensor 3®), Schering- Plough

(Rabdomun®) and Merial (Imrab 3® and Imrab Large Animal®) . These vaccines do not use live viruses but are killed vaccine

10. Foot-and-mouth disease

Foot-and-mouth disease (FMD) is a severe, highly contagious viral disease of cattle and swine. It also affects sheep, goats, deer, and other cloven-hooved ruminants. FMD is not recognised as a zoonotic disease. The disease spreads very quickly if not controlled and because of this is a reportable disease.

Cause

The disease is caused by a virus of which there are seven 'types', each producing the same symptoms, and distinguishable only in the laboratory.

Symptoms

- Fever
- Bilsters in the mouth and on feet
- Drop in milk production
- Weight loss
- Loss of appetite
- Quivering lips and frothing of mouth
- Cows may develop blisters on teats
- Lameness

Treatment

Treatment is not given. Affected animals will recover. However because of the loss of production and the infectious state of the disease, infected animals are usually culled.

Prevention

FMD is one of the most difficult animal infections to control. Because the disease occurs in many parts of the world, there is always a chance of its accidental introduction into an unaffected country.

Export restrictions are often imposed on countries with known outbreaks.

FMD outbreaks are usually controlled by quarantines and movement restrictions, euthanasia of affected and in-contact animals, and cleansing and disinfection of affected premises, equipment and vehicles.

Infected carcasses must be disposed of safely by incineration, rendering, burial or other techniques. Milk from infected cows can be inactivated by heating to 100°C (212°F) for more than 20 minutes. Slurry can be heated to 67°C (153°F) for three minutes.

Rodents and other vectors may be killed to prevent them from mechanically disseminating the virus.

Good biosecurity measures should be practiced on uninfected farms to prevent entry of the virus.

Vaccination

Vaccination can be used to reduce the spread of FMD or protect specific animals. Vaccines are also used in endemic regions to protect animals from clinical disease. FMDV vaccines must closely match the serotype and strain of the infecting strain. Vaccination with one serotype does not protect the animal against other serotypes, and may not protect the animal completely or at all from other strains of the same serotype. Currently, there is no universal FMD vaccine

11. Botulism

Cause of botulism

Botulism is caused by Clostridium botulinum bacteria that produce toxins under certain environmental conditions. C. botulinum bacteria are commonly found in the environment and will grow to high levels in decaying organic matter including animal and bird carcases. It is believed that contamination of broiler litter with the carcases of chickens that have died, from various causes during production, can render the litter dangerous for ruminants.

Symptoms of Botulism

- Cattle and sheep of all ages are susceptible to botulism, which is characterised by a progressive muscle weakness (paralysis).
- Affected animals may be weak, stagger about, or go down.
- Cattle characteristically display flaccid paralysis and occasionally protrusion of the tongue.
- Signs in sheep and goats are similar to cattle but protrusion of the tongue may not be as obvious.

Control of Botulism in Ruminants

Careful disposal of all animal or bird carcases and poultry litter is essential to minimise the risk of botulism to livestock..

Vaccination

Vaccination is available.

12. Pasteurellosis:-

Septicemic pasteurellosis

It is acute bacterial disease also called hemorrhagic septicemia caused by *Paseurella multicda*

Transmissions –by ingestion of saliva and contaminated feed

Symptoms – High fever, painful swelling around brachial area, dyspnea

Treatment- Oxy-tetracycline, chloramphenicol, sulphonamide

Prevented by vaccination

Pneumonia pasteurellosis

It is bacterial disease also called transit fever caused by *Paseurella hemolytica*

Transmissions –by inhalation of infected droplets of coughing of cases or carriers

Symptoms – Sudden death depression, shallow breathing, dyspnea

Treatment- Chloramphenicol, Oxy-tetracycline, Sulphamethazine

Prevented by vaccination

13. African horse sickness (AHS)

Classification of the causative agent

African horse sickness (AHS) is caused by a virus of the family Reoviridae, genus Orbivirus.

DIAGNOSIS

The incubation period in equids is approximately 3 days to 2 weeks (usually < 9 days), with the cardiac form typically developing later than the pulmonary form. Experimental infections suggest that the incubation period might is potentially be as long as 21 days.

Clinical diagnosis

- There are four principal manifestations of disease.
- In the majority of cases, the subclinical cardiac form is suddenly followed by marked dyspnoea and other signs typical of the pulmonary form
- A nervous form may occur, though it is rare
- Morbidity and mortality vary with the species of animal, previous immunity and the form of the disease, Horses are particularly susceptible where mixed and pulmonary forms tend to predominate; mortality rate is usually 50% to 95% o Mules: mortality is about 50%; European and Asian donkeys: mortality is 5–10%; African donkeys and zebra: mortality is rare
- Animals that recover from AHS develop good immunity to the infecting serotype and partial immunity to other serotypes

- Sudden death can also occur without preceding signs.

Subclinical form (Horse sickness fever)

- Fever (40–40.5°C)
- Mild form; general malaise for 1–2 days
- Very rarely results in death

Subacute, oedematous or cardiac form

- Fever (39–41°C)
- Swelling of the supraorbital fossa, eyelids, facial tissues, neck, thorax, brisket and shoulders
- Mortality usually 50% or higher; death usually within 1 week

Peracute, respiratory or pulmonary form

- Fever (40–41°C)
- Dyspnoea, spasmodic coughing, dilated nostrils with frothy fluid oozing out
- Redness of conjunctivae
- Nearly always fatal; death from anoxia within 1 week

Acute or mixed form (cardiac and pulmonary)

- Occurs frequently
- Pulmonary signs of a mild nature that do not progress, oedematous swellings and effusions
- Mortality: about 70–80% or greater

Prevention and control

• No efficient treatment available

14. BOVINE ANAEMIA-THEILERIA

Benign theileriosis is a tick-borne disease caused by intracellular blood parasites belonging to the Theileria orientalis group (BATOG). This disease represents no threat to human health.

Cause

Bush ticks are mainly a cattle parasite, but are able to attach to other mammals including wildlife, birds, livestock (including horses, sheep, goats and poultry) and domestic animals such as dogs and cats. In sheep, bush ticks prefer to attach mainly on body parts not covered by wool. The most common sites of attachment on cattle are around the tail, on the udder, inside the legs, on the brisket, in the ears, and occasionally on the face and neck.

Although it may cause tick irritation and local reactions in all species, H. longicornis only transmits benign theileriosis to cattle.

Symptoms

- lethargy
- lack of appetite,
- exercise intolerance (weak cattle that lag behind the mob if moved).
- Pregnant cows may abort and still births are common.
- In dairy cows a drop in milk production will occur.
- Death rates are highest in heavily pregnant cows.

Treatment

Treatment options for benign theileriosis are limited to supportive care and symptomatic treatment.

Blood transfusion has been performed occasionally on valuable animals. Animals improve following transfusion but it is expensive and not practical if multiple animals are involved. Most importantly, stress and movement of affected cattle should be minimised or their reduced ability to transport oxygen throughout the body may lead to collapse.

Prevention: Following simple biosecurity procedures is the best action producers can take to help prevent the spread of the disease. Here are some specific preventative steps for producers:

- When buying in new stock, ascertain their health status.
- Avoid importing animals from known affected properties or localities.
- Where the health status of bought-in stock is unknown, treatment with a registered tick treatment may be advisable prior to introduction..
- Rotational grazing practices may also help control ticks
- Cattle showing clinical benign theileriois must not be stressed.

13. Coccidiosis

Cause

Coccidiosis is caused by single-celled parasites (not bacteria) known as coccidia.

Symptoms

- Diarrhoea
- Depression
- Loss of appetite
- Weight loss
- Dysentery

Treatment: In most cases calves will recover without treatment. Treatment is better given to in-contact animals that have not yet started showing signs, or to combat secondary infection.

Prevention

- good management and hygiene
- Young susceptible animals should be kept as clean and dry as possible.
- Feeding and watering equipment should be cleaned and protected from fecal contamination.
- Avoid feeding cattle on the ground, especially calves, so manure does not contaminate the feed.
- Excessive moisture in pens should be drained, and dry bedding should be provided.

14. **Ringworm**

Cause

Ringworm is one of the commonest skin diseases in such cattle. Ringworm is a transmissible infectious skin disease caused most often by Trichophyton verrucosum, a spore forming fungi.

The spores can remain alive for years in a dry environment. It occurs in all species of mammals including cattle and man. Although unsightly, fungal infections cause little permanent damage or economic loss. Direct contact with infected animals is the most common method of spreading the infection.

Symptoms

- Grey-white areas of skin with an ash like surface
- Usually circular in outline and slightly raised
- Size of lesions very variable, can become very extensive
- In calves most commonly found around eyes, on ears and on back, in adult cattle chest and legs more common

Treatment

Ringworm will usually heal itself without treatment, however this can take up to nine months. Topical treatment, application of the medication directly onto the lesion, is the usual procedure. Medication cannot penetrate the crusts; the crusts should be removed by scraping or brushing. They should be collected and burned to avoid contaminating the premises. Lesions should be treated at least twice, three to five days apart.

Prevention

The environment is a major source of infective fungi. Effective control of ringworm will only occur if the environment is properly cleaned and disinfected. This must be done between each batch of animals.

15. Lice

Lice irritate cattle, causing the cattle to bite, scratch and rub. This constant irritation can become a welfare issue.

Cause

Lice are small, flat-bodied insects with legs modified for grasping hairs.

1. ***Sucking lice***; These have relatively small narrow heads designed piercing the skin and sucking blood. In large numbers they can cause anaemia. They are usually found around the head and neck of cattle
2. ***Biting lice***;Biting lice have larger rounder heads. They feed on skin debris, blood and scabs. Despite being apparently less invasive than sucking lice, it is biting lice that produce the most severe irritation. There is one species of biting louse found throughout the world. It is a reddish-brown louse about 2 mm long with a brown head. It is mostly found on the neck, shoulders, back and rump.

Symptoms

- Rubbing
- Hair loss due to rubbing on neck, shoulders and rump
- Biting
- Scratching

Lousy cattle may cause damage to fences, yards or trees which the cattle use as rubbing posts. The coats of lousy cattle take on a rough scruffy appearance, and, at times, areas of skin are rubbed raw.

The effect of lice on the production and growth rate of cattle is a matter for continued debate. Conflicting results from many trials indicate that various factors interact to influence the degree to which lice affect cattle. Lice can be an important cause of economic loss when cattle are in poor condition or if infestations are heavy.

Treatment

Insecticides can be used to treat infected cattle.

Different treatments are available including pour-ons, sprays, ear-tags or injection.

There are some concerns about resistance to treatments.

Prevention

As well as using insecticides, basic bio-security can prevent outbreaks on farm. Avoid parasite introductions onto the farm by asking about the previous treatment history of brought-in cattle, and by assessing their potential for carrying external parasites by examining skin, and making behavioral observations

16. LIVER FLUKE

All grazing cattle are susceptible to liver fluke, although wet areas hold higher risk. Trends show a seasonal rise in cases of fluke in late summer and autumn.

Symptoms

- Condemnation of livers
- Reduced milk yields
- Reduced fertility
- Anaemia
- Diarrhoea
- In severe

Causes

Liver fluke is caused by a parasite *Fasciloa hepatica*.

preventation

pasture rotation is effective against fluke, as this prevents cattle grazing the snail habitat.

If possible keep cattle from grazing on wet areas such as pond margins, river banks and marshy ground.

Treatment : A number of products are available for treating fluke in cattle. Flukicides are effective against immature and adult fluke.

17. Mange

Cause: Mange is the term used to describe infection by mites, microscopic relatives of spiders. They inhabit and damage the skin of domestic animals and man. Problems are most frequently seen in the autumn and winter but can occur all year round.

Symptoms: The surface mite is usually found on the neck, legs, and tail head. It produces limited hair loss, which only increases slowly in size. However, the lesions are obviously itchy which results in hide damage elsewhere as the cattle try to rub the affected areas.

Treatment

The choice is between pour-on products and injections.

Treat all cattle on the property at the same time if possible, choosing a time when they are not stressed or in poor condition. If groups have to be treated separately, such groups should be kept apart to ensure there is no contact between treated and untreated groups

18. Trypanosomosis/ sleeping disease

Cause: *Trypanosomosis* is usually transmitted through blood lymph and other fluids of infected animals. It is caused by flagellated protozoan parasites that live in the fluids and tissue of its host animal.

Symptoms: Symptoms often begin to show four to 24 days after infection. The most important clinical sign is non regenerative anemia. The major clinical signs are:

- intermittent fever
- anemia
- oedema
- lacrimation
- enlarged lymph nodes
- abortion
- decreased fertility
- loss of appetite
- early death in
- acute forms

Prevention and treatment

at present no vaccine is available.

If detected early, *Trypanosomosis* can be treated with trypanocidal drugs for therapeutic and prophylactic purposes. Therapeutic drugs for cattle include diminazene aceturate, homidium chloride and homidium bromide. Prophylactic drugs for cattle include homidium chloride, homidium bromide and isometamidium.

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

A. Multiple choice(2pts each)

1. Strongyles are also called bloodworms.
   True
   Fals
2. Anaerobic clostridial bacteria release toxins that can cause severe localized and systemic disease, many of which can be fatal if untreated. Which one of the following clostridial diseases results in intravascular hemolysis, hemolytic anemia, and hemoglobinuria in cattle?
   A. Botulism
   B. Enterotoxemia
   C. Malignant edema
   D. Red water disease
3. Name for tetanus is?
   A. lockjaw
   B. strangles
   C. influenza
   D. poll evil
4. Which of the following is NOT an external parasite?
   A. Bots
   B. Lice
   C. Pinworms
   D. Mites

Discussion

1. What are external parasities that affect animals?(3pts)
2. What are internal parasities that affect animals(1pts)
3. Mention and describe infections disease?(1pts)
4. What are symptoms of rabies in animals?(2pts)

Note: **Satisfactory rating 15 points** **Unsatisfactory below 15 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Information Sheet- 2. Identifying animals affected by metabolic disease or protozoa

Introduction Metabolism refers to all the chemical reactions taking place in the body to convert or use energy. A few major examples of metabolism include:

- Breaking down the carbohydrates, proteins, and fats in food to release energy.
- Transforming excess nitrogen into waste products excreted in urine.
- Breaking down or converting chemicals into other substances and transporting them inside cells.

Metabolism is an organized but chaotic chemical assembly line. Raw materials, half-finished products, and waste materials are constantly being used, produced, transported, and excreted. The "workers" on the assembly line are enzymes and other proteins that make chemical reactions happen

1. Bloat

Rumen acidosis is a metabolic disease of cattle. Like most metabolic diseases it is important to remember that for every cow that shows clinical signs, there will be several more which are affected sub-clinically. Acidosis is said to occur when the pH of the rumen falls to less than 5.5 (normal is 6.5 to 7.0). In many cases the pH can fall even lower. The fall in pH has two effects. Firstly, the rumen stops moving, becoming atonic.

Secondly, the change in acidity changes the rumen flora, with acid-producing bacteria taking over. They produce more acid, making the acidosis worse. The increased acid is then absorbed through the rumen wall, causing metabolic acidosis, which in severe cases can lead to shock and death.

Cause

The primary cause of acidosis is feeding a high level of rapidly digestible carbohydrate, such as barley and other cereals. Acute acidosis, often resulting in death, is most commonly seen in ‘barley beef’ animals where cattle have obtained access to excess feed. In dairy cattle, a milder form, sub-acute acidosis, is seen as a result of feeding increased concentrates compared to forage.

Symptoms

Acute acidosis often results in death, although illness and liver abscesses may be seen before hand. Cattle may become depressed, go off feed, have an elevated heart rate or diarrhea.

Sub-acute:

- Reduced feed intake
- Poor body condition and weight loss
- Unexplained diarrhoea
- Temperature
- Lethargy

Treatment

Because subacute ruminal acidosis is not detected at the time of depressed ruminal pH, there is no specific treatment for it. Secondary conditions may be treated as needed.

Prevention

The key to prevention is reducing the amount of readily fermentable carbohydrate consumed at each meal. Feeding excessive quantities of concentrate and insufficient forage results in a fiber-deficient ration likely to cause subacute ruminal acidosis

2. Acetonaemia(ketosis)

Cause

Ketosis is a metabolic disorder that occurs in cattle when energy demands (e.g. high milk production) exceed energy intake and result in a negative energy balance. Ketotic cows often have low blood glucose (blood sugar) concentrations.

Symptoms

- Reduced milk yield
- Weight loss
- Reduced appetite
- Dull coat
- Acetone (pear drop) smell of breath/ or milk
- Fever
- Some develop nervous signs including excess salivation, licking, agression etc.

Treatment: A quick-acting glucose supplement is required immediately. Follow-up treatment is aimed at providing a long term supply of glucose.

Glucose replacement; Intravenous administration of a dextrose solution by a veterinarian is effective in the short term, but follow-up treatment is essential if relapses are to be avoided.

Hormonal therapy: Many of the long-acting corticosteroids have beneficial effects in ketosis.

Therefore an energy supplement is required and there is evidence that this will improve production and reproductive performance, and decrease the risk of ketosis. The best supplements are good quality hay, silage, or cereal grains. Supplements should be fed at least until the peak of lactation is reached or longer depending on the quality and quantity of available pasture

3. Milk fever in cows | Hypocalcemia

Milk fever in cows can result in:

- Dystocia
- Stillborn calves
- Sudden death of the dam

Calcium deficit results in:

- Reduced smooth muscle tone and contractility of the gastrointestinal tract and the cardiovascular system.
- Reduced muscle tone in uterus causing retained placenta, metritis and endometritis.
- Reduced sphincter muscle tone at the teat end leading to milk leakage and entrance of bacteria causing mastitis.

Milk fever in cows can be categorized by severity of the symptoms.

Stage I is short lasting and often goes unnoticed. Signs include loss of appetite, nervousness, hypersensitivity, weakness, and shuffling of the hind feet (without going down).

In Stage II the cow typically lies down lays its head in the flank or stretches the head, with moderate depression. Observed coordination disorders when walking; muscles are trembling, constipation and a fast heart rate can be observed.

In Stage III the cow lies flat on the ground, unable to stand up, severely depressed, progressive loss of consciousness can be observed, which leads to coma ending with animal death.

Predisposing factors

Predisposing factors for milk fever include:

- Age of the cows: the risk of milk fever increases by approximately 9% per lactation
- High producing cows and when producing a high amount of colostrum
- Breed: Jersey cows are more susceptible than Holstein cows

- High cation level in the feed (potassium, sodium) inhibits calcium Low magnesium level in a diet, reduced calcium absorption in the gut
- Reduced intake (high mycotoxin levels in the diet)
- High estrogen level around calving inhibits calcium mobilization
- High calcium intake during dry periods reduces the ability for Ca utilization from other sources
- Pasture grass or legume fed cows during dry period
- mobilization from the bones

Hypocalcemia control and prevention

Hypocalcemia prevention is important to ensure good animal health, high milk production, and dairy herd fertility on a satisfying level, low cost for disease treatment. Several feeding solutions predominate, including:

- Low calcium diets
- DCAD diets (Dietary Cation-Anion Difference)
- Boluses

Honey bee brood and adult bee diseases

Disease means absence or opposite of ease bees. Like all living creatures are subjected to diseases. Some of these diseases affects adult bees called Adult bee disease and others affect immature stages of honey bees called Brood disease

1.1. Causes of honey bee diseases

	Causes	**Brood and adult bee diseases**
1	Bacteria	American foul Brood (AFB), European Foul Brood (EFB)
2	Protozoa	Nosema and Amoeba
3	Fungi	chalk and stone disease
4	Virus	Sac brood paralysis .etc
5	Parasiticmites	varroa (internal), Acarapis wood (External)

These honey bee diseases are transmitted or spread from colony to colony by different means of swarming, infected equipments, Drifting, Robbing, interchanging the brood combs between diseased and health colonies

Self-Check -2 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Multiple Choice
2. Which of the following signs is most consistent with too-rapid administration of intravenous calcium administration?
   A. Bradycardia
   B. Dyspnea
   C. Hypotension
   D. Seizures
3. The glandular stomach (abomasum) of ruminants is susceptible to several diseases. Which of the following populations is prone to developing abomasal displacement or volvulus?
   A. Beef cattle
   B. Dairy cattle
   C. Goats
   D. Sheep

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Information Sheet- 3. Identify equipment and materials required for the treatment

Tools for livestock care and treatment

1. Thermometer - check body temperature

A thermometer is very useful to check body temperature. A veterinary thermometer is very cheap and can be found in most agro-vet shops. It is an essential tool for the serious livestock farmer to help her or him in judging animal health. Normal body temperature varies a little bit during the day and according to climate, as can be seen in below table. If the body temperature is significantly (<0.5-1^{0}C) higher or lower than indicated below, there is usually a problem to be solved.

2. Mastitis testing tools: Strip Cup and California Mastitis Test (CMT)

a. Strip Cup

A strip cup is a very useful tool and a must for all dairy farmers. Milking the first few strips into a strip cup will show if there are any lumps present indicating beginning or advanced mastitis, which should be controlled urgently. It is a tool that should be in use in the milking parlour of every serious dairy farmer. If actual strip cups cannot be found, a normal cup with black plastic tied onto the top can be used instead. The main thing is to observe the quality of the first milk streaks when starting to milk.

b. California Mastitis Test (CMT)

This test consists of a paddle with 4 cups, one for each quarter. Hold the handle in one hand (the handle representing the tail of the animal). Then milk a streak of milk from each quarter into the corresponding cup of the padddle (Front-Left, Front-Right, Hind-Left, Hind-Right) and remembering that the handle of the paddle points towards the tail of the cow. Next add a roughly equal or slightly higher volume of test solution from the CMT bottle and gently rotate the paddle to mix milk and test solution. (Please follow instructions on the CMT bottle for diluting the test solution to working strength before use). If the mix of milk and test solution stays liquid, the quarter is healthy. But if the mix shows varying degrees of stickiness or sliminess this is an indication of mastitis in the quarter where the milk came from. California mastitis test kits are sometimes available from agro vet shops, but more often have to be ordered. Although affordable and very useful they are not yet widely used.

3. Hoof trimming tools

In some areas and especially where the ground is soft, the hooves of animals grow faster than normal exercise can wear them down. Hoof trimming becomes necessary in order for the animal to be able to walk normally.The problem of overgrown hooves is particularly important for cows kept in zero grazing that do not exercise or walk on pasture at all. Also donkeys working on rough ground must be trimmed regularly to keep the hoofs in normal shape. Deformed hoofs makes normal walking difficult and painful for the animal. The legs may twist in different directions.

4. Glass slides for making blood smears

Blood samples are very useful for examining diseases in cattle. Many diseases such as ECF, Babesiosis and Anaplasmosis are caused by organisms which will show up under the microscopic in a good blood smear.

5. Other useful tools

1. Bandages and clean cloths for cleaning wounds and covering them and for holding broken legs in place
2. Bottle for giving medicine by mouth.
3. Container for sterilizing equipment.
4. A sharp knife or scalpel.
5. Pen and notebook for keeping records
6. Rope. Ropes are essential for any livestock keeper!
7. Syringes and needles for injection.. Most useful sizes are 10ml, 20ml, and 50ml. Some syringes can be boiled to sterilize them for reuse - others cannot be boiled so need to be thrown away after use
8. A syringe without needle is useful for measuring liquids such as dewormers or medicines given by mouth, and for flushing wounds and abscesses
9. Castration rings - mostly for goats and sheep but can also be used for small new born calve
10. Burdizzo castrator (no blood) is the best and cleanest tool for castrating bulls, rams and bucks -
11. Needles and stitching material (thread = suture) for stitching wounds.
12. Tape measure for measuring animals to estimate their weight. When treating animals it is very important to know the approximate body weight in order to give correct dosage of medicine
13. A Trocar for making a hole into the rumen to treat serious cases of bloat

Self-Check -3 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

A. Multiple Choice

1. What can you do to avoid nutritional problems?
   a) Chose foods that are low in fat
   b) Minimize your screen time
   c) All of the above
   d) Get some exercise
2. What are ways to prevent metabolic diseases
   a) Exercise
   b) Schedule regular checkups with your doctor.
   c) Eat a healthy diet
   d) All of the above

Note: **Satisfactory rating 4 points** **Unsatisfactory below 4 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet- 4. Prepare treatment site

4.1. Preparing treatment site

In designing and treating site for cattle we need to consider housing, their different internal facilities and adjacent structures. These includes

The cattle shed: - sheds should be well placed so that direct sun light can reach the platforms,

Drainage system:-effluent (urine, dung etc.) from the cattle shed must discharge to suitable point of disposal, preferably used for producing biogas, the slurry going to fish pond as feed and the enriched water subsequently used for irrigation.

Fence: - to make the farm safe from theft, wild animals and other damages.

Isolation pen: - this is the pen where the sick and injured animals are kept and treated. This is very important in controlling the spread of contagious diseases

For routine handling and management of cattle treatment pens are very important. These routine and common treatment and handling practices first have to be known

- ✓ Catching
- ✓ Dipping
- ✓ Spraying
- ✓ Foot treatment
- ✓ Injection
- ✓ Weighing
- ✓ Clipping
- ✓ Feeding
- ✓ watering
- ✓ Health treatment

Handling pens should be ideally being sited central farm and close to water, shed, electric source and accessible vehicles. The pen floor can be beaten earth, sand, stones or gravel and should be sloppy for drainage purpose. An ideal pen lay out for handling cattle includes

Receiving pen:-wide access to take all cattle's.

Forcing pen:-circular or rectangular pen leading to dip race.

Crush:-that have gats used to restrain for examination and treatment.

Race:-long narrow passage for one sheep or goat at a time.

Sorting gate:-to divert them in to their different pens.

Foot bath:-to treat their foot using formalin solution.

Dip or spray race: - are rectangular or circular baths used for submerging them in to liquids with insecticides to kill ectoparacites.

Draining pen: - used to drain after dipping of animal

Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention proper treatment site for animals

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Operation Sheet- Dipping

Procedure of dipping

Step 1. Prepare dipping solution with the correct concentration

Step 2.Collect animals in the collecting yard

Step 3. Dip small ruminant manually and allow large animals to swim the solution

Step 4. 5 Release the animals

Step 5. Wash your hands and face thoroughly immediately after application of these drugs

LAP Test Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within --- hour.

Task . Perform administering treatments by drenching.

LG #39	LO #3 Facilitate livestock disease prevention and control program

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics

- Preparing and implementing Vaccination programs
- Animal disease outbreak is reported to a veterinarian.
- Carrying out routine prevention procedures for disease or parasite infestation
- Identifying and recording Vaccinated and non-vaccinated animals

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Prepare and implement Vaccination programs
- Animal disease outbreak is reported to a veterinarian.
- Carry out routine prevention procedures for disease or parasite infestation
- Identify and record Vaccinated and non-vaccinated animals

Learning Instructions:

1. Read the specific objectives of this learning guide.
2. Read the specific objectives of this Learning Guide.
3. Follow the instructions described below.
4. Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
5. Accomplish the “Self-checks” which are placed following all information sheets.
6. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
7. If you earned a satisfactory evaluation proceed to “Operation sheets

Information Sheet- 1 Preparing and implementing Vaccination programs

Vaccination is the introduction of a vaccine into thebody to produce immunity to a specific disease. Thevaccine may be administered by subcutaneous, intradermalor intramuscular injection, by mouth, by inhalation(intranasal) or by scarification.

VACCINE Immunobiological substance used for active immunization by introducing in to the body a live modified, attenuated, or killed inactivated infectious organism or its toxin. The vaccine is capable of stimulating an immune response by the host, who is thusrendered resistant to infection.

The animal to be vaccinated should be free of any diseases (antibiotic administration), not immune-compromised

General Principles

- Vaccination involves the administration of a specific antigen to stimulate the immune system to produce homologous antibodies against that specific pathogen.

Vaccination programs should be based on the following considerations

- Diseases prevalent in the area of operation.
- Risk of exposure.
- Immune status of parent-level stock in relation to maternal antibody transfer.
- Cost of acquisition and administration of vaccines.
- Intensity and consequences of adverse vaccine reaction.
- Flock placement programs.
- Availability of specific vaccines.
- Cost to benefit ratio associated with vaccination taking into account the risk of infection and financial losses from disease

Vaccination in poultry

Vaccination or immunization is the process of administrating an antigen or vaccine to the birds to develop protective resistance or immunity against a specific infectious disease.

Vaccines are products containing high numbers of the organism known as to cause a particular disease.

Disease for which vaccines are available

Virus disease which can be controlled by vaccination

- Avian encephalomyelitis (epidemic tremors)
- Fowl pox

- Gumboro disease (infectious bursal disease)
- Infectious bronchitis
- Laryngotracheitis
- Marek's disease
- Newcastle disease

Bacterial (Bacterial vaccines) which are available

- Fowl choleras
- Mixed bacterins

*. Coccidosis control by vaccination has gained acceptance with producers as one approach toward controlling coccidiosis outbreak in both light and heavy breed layers.

1. Type of vaccines

Vaccines contain either live or killed microorganisms

A. Live vaccines are prepared by attenuation of microorganism which retain antigenic and immunogenic characters and become less pathogenic. Live vaccine is used in the areas where there is regular occurrence of the disease. Live-virus vaccines are more proficient because of the vaccine

Virus will grow and reproduce in the host.

B. Killed/inactivated vaccines are made from killed microorganisms causing diseases by means of a physical or chemical agent and become non-pathogenic, but their antigenic and immunogenic characters are maintained. Killed vaccines are used in the area where there is a risk of entrance of that disease or for the diseases the live vaccines are not available. A killed- virus product is dependent up on the antigenic unit (virus- cells) present in the vaccine dose to stimulate antibody production.

Bacterial vaccines- are killed or inactivated preparation of bacteria, produced by growing selected strains of bacterial organism in artificial media

2. Storage of vaccine

Vaccines should be carried in an insulated or thermos flask or in an ice box. It is better to store the killed vaccine in refrigerator, but it can also be stored at room temperature.

3. Preparation of vaccine

The freeze dried live vaccines need to be diluted with sterile, chilled diluents or drinking water for vaccination of birds.

4. Methods of vaccination

Individual bird vaccinations are given by injection

a. **Intranasal vaccination**- is the placement of the vaccine directly into the nose opening.
b. **Intraocular vaccination**- is the placement of the vaccine directly into the eye.
c. **Wing web vaccination**- is the process of injecting the vaccine into the skin on the underside of the wing web at the elbow. A grooved, double needle instrument is used for wing web vaccination.

5. Vaccination schedule

Table 1. Vaccination schedule for poultry

No.	Name of the vaccine	Age	Route
1	Marek's disease vaccine (HVT MD strain)	Day old chicks	Subcutaneously
2	RD"F" strain vaccine or Lasota	5th day	Oculonasaly
3	IBD live vaccine	2 weeks	Oculonasaly or in drinking water
4	RDF Strain (Booster) vaccine or Lasota	4 weeks	Oculonasaly
5	IBD-Live (Booster) vaccine	5 weeks	Oculonasaly or in drinking water
6	Fowl Pox vaccine	6 weeks	Wing web or feather follicle
7	RDR_2B Strain vaccine	8-10 weeks	Subcutaneously or intramuscularly
8	EDS-76 inactivated vaccine	18-20 weeks	Intramuscularly

Self-Check -1 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Can animal get a disease from the vaccine that's supposed to prevent it? And why do some vaccines have live pathogens but others have killed pathogens?
2. How do vaccines work? Do they work against viruses and bacteria**?**
3. Is natural immunity better than vaccine-acquired immunity?
4. Isn't it true that better hygiene and nutrition were responsible for decreases in deaths and disease rates, rather than vaccines?

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Information Sheet- 2 Animal disease outbreak is reported to a veterinarian.

Importance:

Reporting animal disease outbreak

Importance:

- Facilitates timely action
- Source of information

Actions:

- Report to concerned body as soon as possible
- Sick animals should be isolated immediately

Important points to be included during disease reporting

- Geographical location
- Species affected
- When it started
- Major clinical signs
- Age, sex affected
- Course of the disease
- Number of cases

An emergency report

- Send immediately to the woreda office
- Aware the neighboring PAs
- Stop animal and animal products movement
- Take appropriate samples and submit to the Regional Laboratory
- Properly dispose dead animals

Important epidemiological information

- Population at risk
- Possible source of infection
- Major change in weather, feed, water…etc
- Measures taken (treatment, vaccination…etc)

Routine prevention procedures for disease or parasite infestation

PREVENTION: Actions that prevent disease occurrence. Actions aimed at eradicating,eliminating, or minimizing the impact of disease and disability, or if none of these is feasible,retarding the progress of disease and disability.

The concept of *prevention* is bestdefined in the context of *levels* of prevention, traditionally called primary, secondary,and tertiary prevention. Other levels (primordial prevention, quaternary prevention)are also used. There is significant conceptual and practical overlapping among levels –largely, depending on the type of disease (e.g., on the natural history of the disease).

Effective prevention strategies often interact and operate across levels.

1. Primordial prevention consists of conditions, actions, and measures that minimizehazards to health and that hence inhibit the emergence and establishment ofprocesses and factors (environmental, economic, social, behavioral, cultural) knownto increase the risk of disease. Primordial prevention is accomplished throughmany public and private healthy public policies and intersectoral action. It maybe seen as a form of primary prevention.

2. Primary prevention aims to reduce the incidence of disease by personal andcommunal efforts, such as decreasing environmental risks, enhancing nutritionalstatus, immunizing against communicable diseases, or improving water supplies. It isa core task of public health, including health promotion.

3. Secondary prevention aims to reduce the prevalence of disease by shortening itsduration. If the disease has no cure, it may increase survival and quality of life; it willalso increase the prevalence of the disease. It seldom prevents disease occurrence; itdoes so only when early detection of a precursor lesion leads to complete removalof all such lesions. It is a set of measures available to individuals and communitiesfor the early detection and prompt intervention to control disease and minimizedisability; e.g., by the use of screening programs. It is a core task of preventivemedicine. Both early clinical detection and population-based screening usuallyaim at achieving secondary prevention. In certain diseases, these activities may alsocontribute to tertiary prevention.

4. Tertiary prevention consists of measures aimed at softening the impact of longtermdisease and disability by eliminating or reducing impairment, disability, andhandicap; minimizing suffering; and maximizing potential years or useful life. It ismainly a task of rehabilitation.

5. **Quaternary prevention** consists of actions that identify patients at risk of overdiagnosis or overmedication and that protect them from excessive medicalintervention.

The overall disease prevention, treatment and management activities in the livestock husbandry includes

- Purchase animals from reputable sources/dealers
- Quarantine new animals for sufficient time 14 – 21 d
- Control outside traffic, illegal cross-border trade

- Control birds, rodents, stray animals &other vectors
- Don’t mix your animals with other don’t loan animals.
- Don’t loan equipment.
- Limit access to your farm and animals.
- Control dog, cat, rodent, fly, and bird populations

Vaccination When an animal is vaccinated against a specific disease, the body of the animal will react to it, but the animal does not develop the disease. However, the animal’s body has then been prepared to withstand an attack by this specific disease in its real form. Sometimes a vaccination against a disease will protect the animal all its life against this disease, but most vaccinations have to be repeated after a certain amount of time to ensure protection.

Preventive Treatment. Sometimes we know a certain disease always occurs at the same time of *the year. In some cases it can be useful to treat animals with medicine before we actually see the* sickness in them. This will prevent them from becoming weak and avoid production losses. For example, preventive treatment against worms can be given before and after the rainy season.

Self-Check -2 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. An outbreak is an increase in the number of cases of a particular disease greater than is expected for a given time and place.(3pts) A. True B. False
2. Define the term out break(2pts)

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Information Sheet- 3. Carrying out routine prevention procedures for disease or parasite infestation

3.1 Appling routine prevention in the farm

Denial of access of the disease agent to susceptible host animals

This may be achieved by:

- Applying good hygiene and sanitary practices when handling livestock. This includes disinfection of all personnel and equipment.
- Removing potentially contaminated materials from the environment, by disinfection, destruction and/or safe disposal.
- Preventing the feeding of contaminated materials to livestock. Many diseases can be transmitted in this way.

Avoiding contact between infected and susceptible animals

This is one of the most important approaches and may be achieved by:

- Quarantining of infected or potentially infected farms or areas. A ban or appropriate animal health restrictions are placed on the movement of susceptible species animals into or out of the quarantined area until infection is considered to have been removed.
- Imposing livestock movement controls. These are usually imposed over a wider area around the immediate quarantined or infected area, as part of a zoning policy (for example, within surveillance or control zones).
- In some cases, through erecting large-scale fencing or other physical barriers. However, potential adverse effects, such as disruption of wildlife habitats and of traditional movements of people and their animals, should first be evaluated.

Removing infected and potentially infected animals

This is often referred to as an eradication policy. Susceptible species on infected farms or in designated infected areas are immediately slaughtered on site and their carcasses

disposed of safely, usually by burial or burning. It is often combined with cleaning and disinfection procedures for the infected premises..

Reducing the number of susceptible animals

This is an important approach used in many countries. In emergency disease control it is usually achieved by vaccination of susceptible animals. Vaccination may be done selectively (for example as “ring vaccination” around infected areas) or as “blanket” vaccination programmes in susceptible animal populations. Depending on the nature of the disease and of available vaccines, it may be possible to eliminate infection completely.

Reducing access of vectors to susceptible animals

This may be appropriate for insect-borne diseases and, in some cases, may be achieved by reducing vector numbers in an area by treatment and/or elimination of potential breeding sites. Large-scale insecticide spraying is generally too costly, ineffective in the long term, and/or environmentally unacceptable.

Biological control

To date, there has been only one emergency disease situation for which biological control has proved effective.

Self-Check -3 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention all possible out routine prevention procedures for disease or parasite infestation.(5pts)

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Information Sheet- 4 Identifying and recording Vaccinated and non-vaccinated animals

4.1 Isolating treated animals from non-treated animals

Isolation pen: - this is the pen where the sick and injured animals are kept and treated. This is very important in controlling the spread of contagious diseases

4.1.1 Counting, preparing and moving animals

The move is always easiest and safest if the cattle are not excessively aroused or stressed. At the time of movement, check for any abnormal behavior, lameness, reluctance to move or animals isolated from the remainder of the herd.

- Plan the move in advance. Set the gates ahead and make sure the way is clear.
- The movement of cattle from one paddock to another, or to penning facilities, should be done without recourse to excessive force. Livestock are wary of new events and need to be gently handled to allow them adjust to a new situation. Beating cattle or having an untrained aggressive dog which causes panic should be avoided.
- The cattle need to see where they are expected to move to, i.e. if going indoors or into a truck make sure that lights are on and corridors are clear.

Giving animal's time to settle post-treatment, conducting the move in a controlled and quiet manner to correct paddock or sickba

Vaccination data

Vaccination is one of the main control measures for many animal diseases. Therefore, the collection of data on vaccination activity may be essential for defining the health status of an animal population.

The minimum data that should be recorded is the number of vaccinated animals within a given time period (year, month, week, etc.) and the epidemiological unit of concern (ideally each premises). Nonetheless, information on vaccination may not be sufficient to precisely quantify the proportion of the population immunized, particularly when booster doses are required.

Theoretically, only the registration and identification of each individual animal that has been vaccinated would enable accurate calculation of the number of animals that have been correctly immunized.

Mass vaccination activities enable veterinary services to enter a large number of premises and crosscheck the identification and movement records of each animal. There are also animal identification and recording schemes linked with specific vaccination programmes.

Accurately record date of administration, the identity of treated animals, the batch number, amount and expiry date of the vaccine used. Appropriate information should be kept on file of vaccines used (e.g. Summary of Product Characteristics (SPC) –product data sheet, package inserts or safety data sheets). Records must be kept for a period of five years after the treatment has ended even if the animal has been slaughtered.

Self-Check -4	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. How to identfy vaccinated animals and not vaccinated animals?

Note: **Satisfactory rating – 3 points** **Unsatisfactory - below 3 points**

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

LG #40	LO #4. Carryout post treatment activities

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Monitoring and reporting animal's health condition and post- treatment
- Identifying, assessing and controlling environmental implications associated with the treatment of animals
- Cleaning equipment and worksite and disposing wastes
- Documenting relevant information

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Monitor and report animal's health condition and post- treatment
- Identify, assess and control environmental implications associated with the treatment of animals
- Clean equipment and worksite and dispose wastes
- Document relevant information

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the "Self-checks" which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If you earned a satisfactory evaluation proceed to "Operation sheets

Information Sheet-1 Monitoring and reporting animal's health condition and post- treatment

1.1. Introduction

Dairy animals health monitoring means assessing whether the animals become infected or not. it is done by seeing the following parameters.

Parameters	healthy cow	sick cow
Look of the animal	active, smart, alert	dull,in active
Head	raised upward	down ward
Eyes	wide open,bright	dull,white deposite in
Nose/mouth	no discharge	may be some discharge
Movement	active	sluggish
Response to call	quick	slow
Hair coat	normal,smooth	raised ,rough
Ears	erect, normal	drooping
Consistency of drug abnormal(presence of pus)	normal	
Muzzle	wet	dry
Pulse/min	60-70	more than 70
Temperature milk fever	38.5	usually more except
Grazing	regular	will not
Respiration/min	12-20	more
Rumination completly	regular	irregular or ceases
Bowl motion and urine	evacuate usually 20-20kg	not in normal quantity
Feed and water intake	normal	reduced
Milk yield	usually normal	reduced
Udder	normal	may be swelling
Docility	calm	dull or excited

Self-Check -3 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention all possible out routine prevention procedures for disease or parasite infestation.(5pts)

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score _____

Rating:_____

Answer Sheet

Name: _____ Date: _____

Information Sheet-2 Identifying, assessing and controlling environmental implications associated with the treatment of animals

2.1 Introduction

Negative environmental impacts may result from the unsafe use and disposal of veterinarian chemicals (dipping, jetting, parasite control) and any consequent residual chemicals. Impacts may also result from high concentrations of animals on ground cover causing run-off flows, loss of ground cover, soil disturbance, pugging, dust problems, weed seeds in animals manure, contamination of ground and surface water supplies, and odors.

2.2. Animal Environment, Housing, and Management

Proper housing and management of animal facilities are essential to animal well-being, to the quality of research data and teaching or testing programs in which animals are used, and to the health and safety of personnel. A good management program provides the environment, housing, and care that permit animals to grow, mature, reproduce, and maintain good health; provides for their well-being; and minimizes variations that can affect research results. Specific operating practices depend on many factors that are peculiar to individual institutions and situations. Well-trained and motivated personnel can often ensure high-quality animal care, even in institutions with less than optimal physical plants or equipment.

Many factors should be considered in planning for adequate and appropriate physical and social environment, housing, space, and management. These include

- The species, strain, and breed of the animal and individual characteristics, such as sex, age, size, behavior, experiences, and health.
- The ability of the animals to form social groups with conspecifics through sight, smell, and possibly contact, whether the animals are maintained singly or in groups.
- The design and construction of housing.
- The availability or suitability of enrichments.

- The project goals and experimental design (e.g., production, breeding, research, testing, and teaching).
- The intensity of animal manipulation and invasiveness of the procedures conducted.
- The presence of hazardous or disease-causing materials.
- The duration of the holding period.

2.2.1. Physical Environment

2.2.1.1.Microenvironment and Macro environment:

The *microenvironment* of an animal is the physical environment immediately surrounding it—the primary enclosure with its own temperature, humidity, and gaseous and particulate composition of the air..

Housing

Primary Enclosures: The primary enclosure (usually a cage, pen, or stall) provides the limits of an animal's immediate environment. Acceptable primary enclosures

- Allow for the normal physiologic and behavioral needs of the animals,
- Allow conspecific social interaction and development of hierarchies within or between enclosures.
- Make it possible for the animals to remain clean and
- Allow adequate ventilation.
- Allow the animals access to food and water and permit easy filling, refilling, changing, servicing, and cleaning of food and water utensils.
- Provide a secure environment that does not allow escape of or accidental entrapment of animals or their appendages between opposing surfaces or by structural openings.
- Are free of sharp edges or projections that could cause injury to the animals.
- Allow observation of the animals with minimal disturbance of them.

Sheltered or Outdoor Housing:

Sheltered or outdoor housing, corrals, pastures, and islands-is a common primary housing method for some species and is acceptable for many situations. In most cases, outdoor housing entails maintaining animals in groups.

When animals are maintained in outdoor runs, pens, or other large enclosures, there must be protection from extremes in temperature or other harsh weather conditions and adequate protective and escape mechanisms for submissive animals.

Space Recommendations: An animal's space needs are complex, and consideration of only the animal's body weight or surface area is insufficient.

Temperature and Humidity:

Regulation of body temperature within normal variation is necessary for the well-being of homeotherms. Generally, exposure of un adapted animals to temperatures above 85ºF (29.4ºC) or below 40ºF (4.4ºC), without access to shelter or other protective mechanisms, might produce clinical effects

.**Ventilation:**

The purposes of ventilation are to supply adequate oxygen; remove thermal loads caused by animal respiration, lights, and equipment; dilute gaseous and particulate contaminants; adjust the moisture content of room air; and, where

Illumination

In general, lighting should be diffused throughout an animal holding area and provide sufficient illumination for the well-being of the animals and to allow good housekeeping practices, adequate inspection of animals—including the bottom-most cages in racks—and safe working conditions for personnel. Light in

Noise

Separation of human and animal areas minimizes disturbances to both the human and animal occupants of the facility. Noisy animals—such as dogs, swine, goats, and nonhuman primates—should be housed away from quieter animals, such as rodents,

rabbits, and cats. Environments should be designed to accommodate animals that make noise, rather than resorting to methods of noise reduction.

BEHAVIORAL MANAGEMENT

Structural Environment

The structural environment consists of components of the primary enclosure—cage furniture, equipment for environmental enrichment, objects for manipulation by the animals, and cage complexities.

HUSBANDRY

Food

Animals should be fed palatable, non contaminated, and nutritionally adequate food daily or according to their particular requirements unless the protocol in which they are being used requires otherwise..

Animal-colony managers should be judicious in purchasing, transporting, storing, and handling food to minimize the introduction of diseases, parasites, potential disease vectors (e.g., insects and other vermin), and chemical contaminants into animal colonies. Purchasers are encouraged to consider manufacturers'

Water

Ordinarily, animals should have access to potable, uncontaminated drinking water according to their particular requirements. Watering devices, such as drinking tubes and automatic waterers, should be checked daily to ensure their proper maintenance, cleanliness, and operation. Animals sometimes have to be trained to use automatic watering devices

Bedding

Bedding should be used in amounts sufficient to keep animals dry between cage changes, and, in the case of small laboratory animals, care should be taken to keep the bedding from coming into contact with the water tube, because such contact could cause leakage of water into the cage.

Sanitation

Sanitation—the maintenance of conditions conducive to health—involves bedding change (as appropriate), cleaning, and disinfection. Cleaning removes excessive amounts of dirt and debris, and disinfection reduces or eliminates unacceptable concentrations of microorganisms.

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Bedding Change

Soiled bedding should be removed and replaced with fresh materials as often as is necessary to keep the animals clean and dry.

Cleaning and Disinfection of Primary Enclosures

For pens or runs, frequent flushing with water and periodic use of detergents or disinfectants are usually appropriate to maintain sufficiently clean surfaces. If animal waste is to be removed by flushing, this will need to be done at least once

Cleaning and Disinfection of Secondary Enclosures

All components of the animal facility, including animal rooms and support spaces (such as storage areas, cage-washing facilities, corridors, and procedure rooms) should be cleaned regularly and disinfected as appropriate to the circumstances and at a frequency based on the use of the area and the nature of likely contamination.

Population Management

Identification and Records

Means of animal identification include room, rack, pen, stall, and cage cards with written or bar-coded information; collars, bands, plates, and tabs; colored stains; ear notches and tags; tattoos; subcutaneous transponders; and freeze brands.

Self-Check -2	**Written Test**

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention all possible out routine prevention procedures for disease or parasite infestation.(5pts)

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Information Sheet-3 Cleaning equipment and worksite and disposing wastes animals

3.1. Cleaning equipment and returning to store

Cleaning refers to removal of matter from a surface on which it is not acceptable. Soil surface should be contact with a cleaning agent for adequate time and sufficient pressure should be applied, if required, to remove the soil. Cleaning involves two steps: wash step and rinse step. Equipment should be carefully selected and, washed, and maintained before they can be sanitized.

Sanitizing is the processes of destruction of micro-organisms on surface after washing and rinsing. The purpose of sanitizing is to reduce the microbial count to a safe level. It is achieved through heat and application of chemical compounds.

Both cleaning and sanitizing from the basis of livestock production service sanitation and their purposes are:

1. Reduce health hazards by avoiding contamination
2. Prevent the spread of diseases, and food & water contamination,
3. Control abnormal odors, and
4. Create conducive environmental conditions.

Water is important in the cleaning process. It dissolves detergents and sanitizes and activates them. A good sanitizer should have the following properties.

- Toxic to micro-organisms,
- None corrosive,
- Water soluble,
- Deoderizind,
- Doesn't impart odor or taste,
- Doesn't react with food,
- Effective,
- Easily rinsing,
- Easily available, and
- Reasonably price

Method of Cleaning:

- Manual: - removal of soil by scrubbing in the presence of detergent solution.
- Applying Low pressure High volume Spry: - the application of water or detergent solution in large volume at low pressure.
- High Pressure Low volume Spry: - application of water and detergent solution low volume at high pressure.
- Foam Cleaning: - the application of detergent in the form of foam. The foam is allowed to react for 15- to-20 minutes and then rinsed off with water spray

Disinfectants

- A number of compounds are available commercially, each with characteristics for specific applications.
- The most common ones which are used here are
    - ✓ Formalin
    - ✓ Berekina
    - ✓ Potassium bi-carbonate

Procedures for livestock house disinfection

- The surface of the floor and the lower side walls should be sprayed with a 2% carbamate insecticide.
- If litter required Litter should be graded to the center of the house for removal
- Equipment should be disassembled and removed from the house for cleaning and disinfection.
- Electrical units, motors, and switch gear should be cleaned using a high-pressure air spray and then sealed to protect installations from water damage.
- The floor of the house should be swept to remove residual litter.
- The house should be decontaminated by spraying a detergent. Detergent should be applied to the exterior in the sequence of roof, exterior walls, drains, and service areas.

- Cleaning the interior should follow the sequence of ceiling, internal walls, and then the floor.
- The interior structure and equipment should be rinsed with water and remaining detergent solution should be allowed to drain.
- The interior of the house should then be sprayed with disinfectant solution
- A 2% malation insecticide solution should be sprayed on the ceiling, walls, and floor to control intensive farm transitive disease .
- Equipment should be reassembled and routine preventative maintenance completed. A clean, dry bedding material should be spread to a depth of 3 - 10 cm, over the floor area.
- The houses should be sealed and fumigated with formalin
- Water lines and drinkers should be drained and cleaned.
- Rodent control measures should be implemented including sealing of burrows and baiting.

Self-Check -3 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write selection criteria of disinfecting agents?
2. List procedures for livestock house disinfection?

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Information Sheet-4 Documenting relevant information

4.1. Documentation For Animal Sanctuary Residents

Responsible operation of an animal sanctuary means providing the best care possible for your residents. One of the most effective tools in resident care is also one of the simplest: regular health documentation for every resident. Record keeping is essential in all aspects of a resident's life at your sanctuary, but keeping a record of their health status is arguably the most critical. Neglecting to document the health of your residents could have serious implications for the individual, other residents at your sanctuary, and potentially your organization as a whole.

Each resident in your care should have their own collection of health records, including:

- Intake examination records
- Transfer of Guardianship records (if applicable)
- Regular health checkup reports
- Treatment reports
- Quarantine reports
- Veterinary care reports
- Incident reports
- End Of Care reports, either due to adoption or passing away

Benefits of documentation for all of your residents

When you are effective in individual resident documentation, you can use this individual data to help make better decisions for your resident populations as a whole.

Know What's Around

Benefits Of Documentation For Your Organization

Create More Effective Biosecurity Protocols

When you keep regular health records of individuals, you have a more effective picture of what biosecurity challenges may need to be managed at your sanctuary. If a human were to contract a zoonotic disease from one of your residents, especially a young visitor, it could threaten the continuance of your organization. By keeping track of and reviewing individual resident health patterns, you can determine how to best protect other residents and humans moving forward.

Provide Evidence Of Excellent Care

Because sanctuary residents sometimes come from unsafe or dangerous conditions, they may arrive at your sanctuary in very poor health. Documentation can prove to legal parties that you are truly doing right by your residents, going above and beyond to give them a good life (intake recording of a neglected animal should include documenting their body condition score on arrival and getting photo documentation of their recovery since arrival). Neglecting to have this kind of documentation can make it much more difficult to provide evidence of your organization's high standards of care.

Self-Check -4 Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention type of history obtain for documentation ?

Note: **Satisfactory rating 5 points** **Unsatisfactory below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Reference

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